ABSTRACT

The present invention leverages demarcation of an agent into both a demander and a supplier to provide a polynomial-time method of approximating a supply and demand system's equilibrium value. This provides, in one instance of the present invention, a simplified means to iteratively extract the equilibrium value. By providing demarcated data, the present invention accounts for both demand and supply effects of an agent within a modeled supply and demand system. In one instance of the present invention, a market equilibrium price vector is approximated by employing a revenue value generated for an agent in a current market equilibrium price iteration as a budget value for the agent in the next iteration. This permits market equilibrium value modeling that encompasses an agent's contributions to a market both as a buyer and a seller within the same market for a given good *and/or* service.